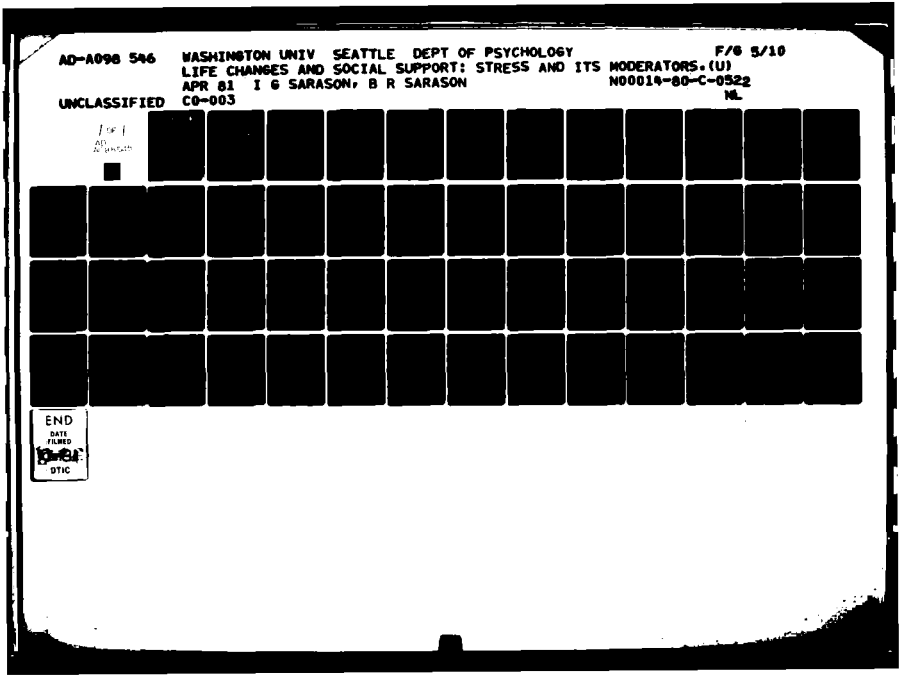
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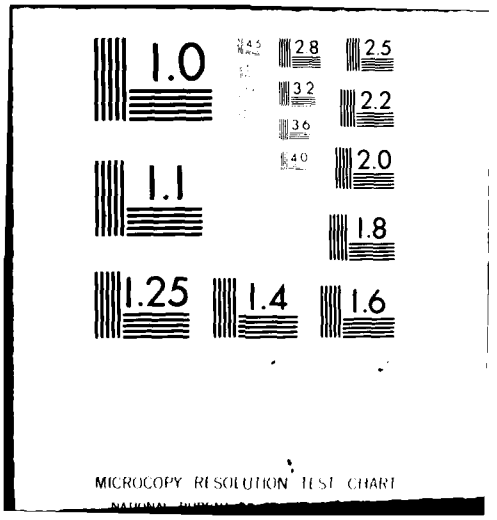
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Life Changes and Social Support: Stress and Its Moderators

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This report reviews the relationship between life changes and social support. Research on this relationship is discussed in terms of stress and its moderators. Stress, environmental moderators (such as social support) and personality are viewed as influences over a person's vulnerability to demands and challenges.

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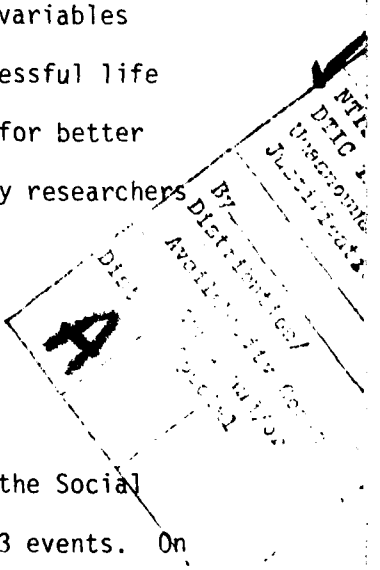
Few generalizations have had as much support as the statement that things are usually more complicated than they at first seem. One common beginning step in scientific progress is the discovery of a "simple" relationship that spurs an army of researchers to investigate the factors involved in the relationship and their ramifications. The early phases of the important Framingham study of coronary heart disease now seem more limited in scope than they did twenty years ago because in the intervening years the roles of psychological and social factors in heart disease have become more widely recognized than they were at the beginning of that project. As a consequence, the complex of factors that must be considered in the study of heart disease has increased substantially. Even if, as sometimes happens, later results are contradictory, the subsequent inquiry often leads to the development of new methods and unanticipated discoveries and relationships.

The study of stress-arousing life changes has followed a somewhat similar pattern of increasing awareness of a complex interaction of a wide variety of factors. For a long time, physicians had observed an association between very severe stressors (wars, concentration camps, natural disasters) and illness. Even so, the association was far from perfect. Some people deteriorated rapidly under severe stress, others showed minimal to moderate deterioration, and still others seemed unaffected. More recently, psychiatric researchers inquired into the relationship to illness of less cataclysmic events (marriage, divorce, loss of a job). Clinical observations suggested that the stressful events of everyday life might play a role in illness onset (Wolff, 1953; Rahe, 1974). Holmes and Rahe's (1967) Social Readjustment Rating Scale and, particularly, their Schedule of Recent Experience provided tools with which the stresses and strains of modern life

could be quantified and related to illness onset. A large amount of research has been carried out using these and more recently developed assessment devices.

As this research has progressed, increasing evidence has buttressed the earlier clinical observations that stressful life events are sometimes related to a decreased level of emotional or physical health. At the same time, a number of variables have been identified that appear to moderate or render less stressful some of these events as experienced by some persons. Tentative positive relationships between these variables and health have also been suggested. This paper first describes some of these variables and shows how they can be taken into account in research on stressful life events, and then suggests a theoretical formulation as a basis for better conceptualizing the complex interaction of variables observed by researchers in this area.



MEASURES OF STRESSFUL LIFE EVENTS

The Schedule of Recent Events (SRE)

An early step in the chain of research on life events was the Social Readjustment Rating Scale (SRRS), which consists of a list of 43 events. On the SRRS, the subject was asked to rate each event for the amount of social readjustment needed to adjust to the event (Holmes & Rahe, 1967). The rating, by means of a magnitude estimation technique, was in the form of a comparison of the amount of readjustment required for each event with the amount of readjustment inherent in getting married. A further and important step in the investigation of life events was the Schedule of Recent Events (SRE) (Holmes & Masuda, 1974). The SRE consists of the list of 43 events and is used to determine which of them actually occurred in the subject's life. The SRE yields a score consisting of the sum of what are termed Life Change

Units (LCUs). This score is the sum of the products of the numbers of life events that occurred to the subject in the recent past multiplied by empirically derived values based on the SRRS research (Masuda & Holmes, 1978).

Since its initial development, the SRE has been used in numerous studies designed to determine relationships between life stress and indices of health and adjustment. Retrospective and prospective studies have provided support for a relationship between SRE scores and a variety of health-related variables. Life stress has, for example, been related to sudden cardiac death (Rahe & Lind, 1971), myocardial infarction (Edwards, 1971; Theorell & Rahe, 1971), pregnancy and birth complications (Gorsuch & Key, 1974), chronic illness (Bedell, Giordani, Amour, Tavormina, & Boll, 1977; Wyler, Masuda, & Holmes, 1971), and other major health problems such as tuberculosis, multiple sclerosis, and diabetes, and a host of less serious physical conditions (Rabkin & Struening, 1976). While not providing conclusive evidence, these studies have provided support for the position taken by Holmes and Masuda (1974) that life stress serves to increase overall susceptibility to illness. That is, stressful life events seem to set the stage for vulnerability to health impairment.

While some of the studies using the SRE were motivated primarily by the desire to determine whether particular physical disorders had psychosocial antecedents, others took more conceptual and methodological tacks. They dealt with topics such as the relationship between life change and stress, devised various ways of assessing life changes, and related life change scores to various external criteria. (Research on these topics has greatly accelerated during the past few years.) In the course of this work, some researchers expressed the need for an instrument that would enable subjects

to characterize events beyond simply whether or not the events had occurred in the recent past. Others questioned the way in which the SRE lumped together both desirable and undesirable events.

The Life Experiences Survey (LES)

An example of the type of instrument that has grown out of these methodological concerns is the Life Experiences Survey (LES) (Sarason, Johnson, & Siegel, 1978). It provides both positive and negative life change scores and permits individualized ratings of the impact of events and their desirability. These individualized measures have the advantage of providing reflections of person-to-person differences in the perception of events. Evidence in support of this approach was provided by Yamamoto and Kinney (1976) who found life stress scores, based on self-ratings of degree of stress experienced, to be better predictors than scores derived by employing mean adjustment ratings similar to those used with the SRE. Other investigators have also found that individualized self-ratings of the impact of life events aid in the prediction of clinical course (Lundberg, Theorell, & Lind, 1975).

The LES is a 47-item self-report measure that allows subjects to indicate events they have experienced during the past year. Subjects can also indicate the occurrence of significant events they have experienced that are not on the LES list. A special supplementary list of 10 events relevant primarily to student populations is available. Other special adaptations are possible. The LES items were chosen to represent life changes frequently experienced by individuals in the general population. Others were included because they were judged to be events which occurred frequently and might exert a significant impact on the lives of persons experiencing them. Thirty-four of the events listed in the LES are similar in content to those found in the SRE. However, certain SRE items were made more specific. For

example, the SRE contains the item "Pregnancy" which might be endorsed by women but perhaps not by a man whose wife or girlfriend has become pregnant. The LES allows both men and women to endorse the occurrence of pregnancy in the following manner: Female: Pregnancy; Male: Wife's/girlfriend's pregnancy. The Schedule of Recent Events includes the item "Wife begins or stops work," an item which fails to assess the impact on women whose husbands begin or cease working. The present scale lists two items: Married male: Change in wife's work outside the home (beginning work, ceasing work, changing to a new job, etc.), and Married female: Change in husband's work (loss of job, beginning of a new job, etc.). Examples of events not listed in the SRE but included in the LES are: male and female items dealing with abortion and concerning serious injury or illness of a close friend, engagement, and breaking up with boyfriend/girlfriend. Nine of the 10 special school-related items are unique to the LES.

Subjects respond to the LES by separately rating the desirability and impact of events they have experienced. Summing the impact ratings of events designated as positive by the subject provides a positive change score. A negative change score is derived by summing the impact ratings of those events experienced as negative by the subject. Scores on the LES do not seem to be influenced by the respondent's mood state at the time of filling out the questionnaire (Siegel, Johnson, & Sarason, 1979a). In addition, the LES does not seem to be appreciably correlated with the social desirability response set.

The negative change score correlates significantly with measures of anxiety, depression, and general psychological discomfort. Studies have also found that negative change scores are related to myocardial infarction (Pancheri et al., 1980), menstrual discomfort (Siegel, Johnson, & Sarason, 1979b), the attitudes of mothers of at-risk infants (Crnic et al., 1980), job satisfaction (Sarason & Johnson, 1979), and college grades (Sarason,

Johnson, & Siegel, 1978; Knapp & Magee, 1979). Michaels & Deffenbacher (1980) found the LES negative change score to be related to physical (seriousness of illness), psychological (depression, anxiety), and academic (grades) variables. While some researchers have found correlates for positive life changes, the magnitude and consistency of these relationships has usually not been robust.

One intriguing idea that merits further study is the possibility that negative and positive life changes are differentially useful in predicting particular types of psychological and physical criteria. Negative, but not positive, life events tend to correlate with emotional malfunction, such as general psychological distress, depression, and anxiety (Johnson & Sarason, 1978), as well as with behavioral problems, such as lowered grade point average (Knapp & Magee, 1979). On the other hand, a few studies have suggested that both positive and negative life changes contribute to physical illness. Two correlational studies with introductory psychology undergraduates have shown both positive and negative life changes to be associated with self-rated illness. In one study using the LES, the number of symptoms checked was correlated with number of positive events listed, number of negative events listed, and total events (Sarason, Levine, Basham, & Sarason, 1981). The second study found similar results, with significant correlations of positive, negative, and total life changes with the medical items on the Cornell Medical Index (Coppel, 1980).

It is possible that the totality of life changes affects the body's physiological homeostasis, whereas only negative life changes are associated with personal dissatisfaction and a lowered sense of emotional wellbeing. Petrich and Holmes (1977) have suggested that patients should be advised to pace the occurrence of positive and negative life events wherever possible. It may be that such a maneuver would be advantageous only for patients with

physical problems. Controlling the occurrence of positive events might be counterproductive for individuals experiencing emotional problems.

As this overview suggests, research on life changes is becoming more methodologically sophisticated. Scales designed to (1) assess the subjective stress associated with events (Horowitz, Wilner, & Alvarez, 1979), (2) deal with the important psychometric issues (Skinner & Lei, 1980; Ross & Mirowsky, 1979), and (3) reflect the multidimensionality of life changes (Ruch, 1977) are now being developed and bode well for progress in this area.

VARIABLES THAT MODERATE STRESS

A number of researchers have recently addressed the question of what variables determine which individuals are likely to be most adversely affected by life change (Jenkins, 1979; Johnson & Sarason, 1979). Most studies of life events have been designed simply to assess the relationships between life change and other variables without considering that individuals may vary in how much they are affected by life changes. Lack of attention to moderator variables constitutes a major limitation of much of the research in this area. One might argue that it is unreasonable to expect to find strong correlates of life events unless such variables are examined and taken into account. As these mediators of life stress are identified, measured reliably, and included in research designs, increased effectiveness in prediction is likely to result.

There are two ways in which the effects of life changes can be moderated. Stressors affect people in various ways depending upon (1) individual differences (for example, in personality, motivation, past experiences), and (2) environmental differences such as situational props or aids (for example, having visits from family members and friends after undergoing surgery).

Personality Variables as Moderators

While a life change may be imposed on an individual, he or she determines how the change is dealt with. A major need in this regard is identification of those personal attributes that are the most important contributors to how events are processed by people. Although there is a lack of systematic research on the nature of these attributes, there is suggestive anecdotal evidence. For example, Norman Cousins, a writer and former editor of the Saturday Review, has described the way in which he appraised the experience of being diagnosed as having an incurable illness, his response to that diagnosis, and his hospitalization. As his condition worsened, Cousins concluded that a hospital is no place for someone who is seriously ill, and that the will to live is not a theoretical abstraction, but a reality with therapeutic implications.

> Since I didn't accept the verdict, I wasn't trapped in the cycle of fear, depression, and panic that frequently accompanies a supposedly incurable illness. I must not make it seem, however, that I was unmindful of the seriousness of the problem or that I was in a festive mood throughout. Being unable to move my body was all the evidence I needed that the specialists were dealing with real concerns. But deep down I knew I had a good chance and relished the idea of bucking the odds . . . . (Cousins, 1976, p. 1462).

Research investigating the relationship between particular personality characteristics and response to stressful life events suggests the value of a moderator variable approach to stress. Many people when confronted with the stressors to which Cousins was exposed would have responded quite differently and less adaptively. Cousins was a fighter and believed his assumption of control was more favorable prognostically than allowing the control to remain completely in the hands of his physicians. He subsequently

made a complete recovery.

Locus of control. A personality variable that appears to be related to perception of life events as stressful is locus of control, or the degree to which people feel in control of their lives. Johnson and Sarason (1978) administered the LES, the Locus of Control Scale (Rotter, 1966), the State-Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970), and the Beck Depression Inventory (Beck, 1967) to college students. The Locus of Control Scale is a self-report measure that assesses the degree to which individuals view environmental events as being under their personal control. Subjects scoring low on the measure (internals) tend to perceive events as being controllable by their own actions, whereas those scoring high on the scale (externals) tend to view events as being influenced by factors other than themselves. The State-Trait Anxiety Inventory assesses anxiety as a relatively stable dispositional variable (trait anxiety) as well as a more transient reaction to specific situations (state anxiety). The Beck scale is a self-report measure of depression. Johnson and Sarason predicted that anxiety and depression would correlate with stressful life events only among subjects external in their locus of control orientation. This prediction seemed reasonable, since one might expect undesirable life events to be more threatening and hence exert a more negative impact on people perceiving themselves as having little control over such events. The researchers found that negative life changes were significantly related to both trait anxiety and depression, but as predicted, this relationship held only for external subjects. Although this study does not allow for cause-effect conclusions, its results are consistent with the view that people are more adversely affected by life stress if they perceive themselves as having little control over their environment

Sensation seeking. Another personality variable that may affect evaluation of stressors is sensation seeking. Individuals vary in their desire for or need to seek out stimulation, and also in their tolerance for stimulation. Some people appear to thrive on life changes. They enjoy traveling to strange places, prefer the unfamiliar to the familiar, and participate in activities such as skydiving, automobile racing, motorcycle riding, and water skiing. Other people shy away from the unfamiliar, would never think of racing cars or going skydiving, and find some everyday situations more arousing than they would like.

Sensation seeking as a personality attribute may well serve as an important moderator of life stress. High sensation seekers might be expected to be relatively unaffected by life changes, particularly if these changes are not too extreme. These individuals may be better able to deal with the increased arousal involved in experiencing such changes. On the other hand, life change might have a negative effect on people low in sensation seeking who are less able to cope with arousing stimulus input. To the extent that stimulation seeking mediates the effects of life change, one might expect to find significant correlations between life change and problems of health and adjustment with low but not high sensation seekers.

Smith, Johnson, and Sarason (1978) have examined the relationship between the LES, sensation seeking, and psychological distress. Sensation seeking was measured using the Sensation Seeking Scale (Zuckerman, 1979). Distress was assessed by means of the Psychological Screening Inventory (Lanyon, 1973), a self-report measure of neuroticism. People with high negative change scores who were also low in sensation seeking reported high levels of distress. Subjects with high negative change scores, but also high scores in sensation seeking did not describe themselves as experiencing discomfort. The LES positive change score, either alone or in conjunction

with sensation seeking, was unrelated to the individual's psychological discomfort.

Results similar to the Smith et al. study were obtained by Johnson, Sarason, and Siegel (1978). They found that for people low in sensation seeking, the negative change score on the LES was significantly related to measures of both anxiety and hostility. Individuals low on the sensation seeking dimension were much more likely to report that they were greatly affected by life changes than those high in sensation seeking. The positive change score was unrelated to dependent measures regardless of arousal-seeking status. It seems likely that negative events were cognitively appraised as having different degrees of stress by high and low sensation seekers.

Data from a research program concerned with the causes of myocardial infarctions (Pancheri et al., 1980) bear out this idea that it is not the events themselves, but the cognitive appraisal of them and how that dovetails with personality that is the relevant factor. Pancheri and his coworkers found that two factors are especially important as moderators of the appraisal process. One is the general tendency to react with anxiety to problematic situations and the other is coping styles. Although their data suggest that negative life events as assessed by the LES were associated with the occurrence of heart attacks, they found also that cognitive appraisal of these events plays a role in the stressor-infarction relationship.

Social Support as a Moderator Variable

Not only personality characteristics, but also socioenvironmental conditions - the nature, type, and extent of one's social relationships - influence adaptation to stress. The presence of social support has been

regarded by many writers as a major buffer against stress.

Social support is usually defined as the existence or availability of people on whom we can rely, people who let us know that they care about, value, and love us. As Cobb (1976) has pointed out, someone who believes he or she belongs to a social network of communication and mutual obligation experiences social support. Available evidence suggests that the presence of social support may facilitate coping with crisis and adaptation to change. Its absence or withdrawal seems to have a negative effect on coping behavior.

Social support and health. Several studies indicate that social support functions as a moderator of the effects of stressful life events on psychological adjustment and physical health. Lyon and Zucker (1974) found that the post-hospitalization adjustment of discharged schizophrenics was better when social support (friends, neighbors) was present. Burke and Weir (1977) found that the husband-wife helping relationship is an important moderator between experiencing stressful life events and psychological well-being. A helping spouse seems to be particularly valuable in contributing to self-confidence and a sense of security in dealing with the demands of daily living. Brown, Bhrolchain, and Harris (1975) found that the presence of an intimate, but not necessarily sexual, relationship with a male reduced the probability of depression in women following stressful life events. Consistent with these findings, Miller and Ingham (1976) showed that social support (presence of a confidant and friends) reduced the likelihood of psychological and physical symptoms (anxiety, depression, heart palpitations, dizziness) under stress. Gore (1978) studied the relationship between social support and worker's health after being laid off and found that a low sense of social support exacerbated illnesses following the stress of job loss.

There is also evidence that availability of social support is facilitative to health and that lack of such support has a detrimental effect. De Araujo and associates (1972, 1973) reported that asthmatic patients with good social supports required lower levels of medication to produce clinical improvement than did asthmatics with poor social supports. There is much evidence that the health status of medical and surgical patients benefits from attention and expressions of friendliness by physicians and nurses (Auerbach & Kilmann, 1977). Nuckolls, Cassel, and Kaplan (1972) studied lower-middle-class pregnant women living in an overseas military community. These authors studied two factors of special interest: recent stressful life events and psychosocial assets, a major component of which was defined as the availability of social supports. Neither life changes nor psychosocial assets alone correlated significantly with complications of pregnancy. However, women high in life changes and low in psychosocial assets had many more birth complications than any other group. Sosa et al. (1980) found that the presence of a supportive lay person had a favorable effect on length of labor and mother-infant interaction after delivery.

In a prospective study of over 7,000 men evaluating the onset of angina pectoris (chest pain due to insufficient cardiac blood flow and associated with future myocardial infarction), Medalie and Goldbourt (1976) found that wife's love and support was an important predictor. Specifically, where patients were already high on angina, those men with low spouse support had a 68% increase in onset of angina with respect to those having high spouse support.

There may be sex differences or other individual differences in response to social support. In a recent study, Whitcher and Fisher (1979) found that for hospitalized women, being physically touched warmly by a caring nurse prior to undergoing surgery resulted not only in lowered anxiety,

but also in a faster return to pre-operative blood pressure levels. For male patients, however, Whitcher and Fisher obtained results inconsistent with and in some cases opposite to those for women.

Social support may not only moderate the effects of environmental stress and improve the recovery rate from illness, but it also may be associated with increased longevity and be a positive factor in emotional adjustment. In a large-scale epidemiological investigation, Berkman and Syme (1979) found that people who lacked social and community ties were more likely to die during the nine-year period they were studied than those with more extensive contacts. The association between social ties and mortality was independent of self-reported physical health status at the beginning of the nine-year period. It was also independent of physical activity, socio-economic status, and utilization of preventive health services. In a 30-year longitudinal study of Harvard male undergraduates, Vaillant (1974, 1977) found that a supportive early family environment was correlated with positive adult adjustment, health, and lack of psychiatric disorder.

The theoretical role of social support. Although the research reported clearly relates social support to physical and emotional health, the precise form of the relationship cannot yet be defined. In some of the studies cited above, social support acts only as a moderator variable, counteracting the negative effects of adverse life changes. In other studies, social support acts independently as a positive factor in health status. Henderson (1980) has recently pointed out three competing hypotheses that have been offered by researchers who study social support: (1) a deficiency in social support is a cause of morbidity; (2) a deficiency in social support is a cause of morbidity only when adverse circumstances and events are present; and (3) a deficiency of social support is a consequence of a low level of social

competence (i.e., not the primary link in the chain). More longitudinal, prospective research is required to clarify the direction of causality between the variables.

While acknowledging some discrepant findings and the need to identify the causes of different levels of social support, the available evidence suggests that high levels of social support may play a stress-buffering role and to some degree protect an individual from the effects of cumulative life changes. If this is true, there are some important implications for preventative action. As Dean and Lin (1977) have suggested, although it may not be possible for people to avoid experiencing stressful life events, it may be possible to help them mobilize support within the community and thus, to some extent, protect themselves against the effects of stress. Furthermore, training people in the social skills needed to get help from friends, relatives, and the community when stress reaches high levels might prevent a significant number of individuals from experiencing personal difficulties.

One of the most important questions about social support concerns its genesis. What is the relationship between social support and social skills? Do people have many or few social supports because of their levels of social skills? To what degree can social skills be regarded as outcomes of socially supportive experiences earlier in one's life? Rather than a simple question of causality, it may be that social support and social skills are related in complex interactive ways. Clinical, developmental, and experimental studies are needed to provide information about these relationships.

Of equal importance, perhaps, is the question of whether, and if so, how, social support functions as a buffer against stress. In one series of investigations, social support was studied as a manipulated rather than as an assessed characteristic (Sarason, in press). It was shown that performance and self-preoccupation (as measured by the Cognitive Interference Questionnaire) were affected by specially created opportunities for social

association and acceptance by others. Performance increased and self-preoccupation decreased as a function of social support manipulations.

Recent discussions of the role of social support have greatly proliferated in the clinical literature. More often than not, they have been presented on conceptual and conjectural bases. The time seems ripe for an empirical approach to the concepts of social support, their assessment, and relationships with other variables, from both assessment and experimental standpoints.

ASSESSING SOCIAL SUPPORT

The Variety of Measures Available

Important as it appears to be, there is by no means agreement about how to assess a person's level of social support. Both interviews and questionnaires have been used as a basis for identifying social networks and estimating social support levels. Tolsdorf (1976) content analyzed interviews to assess subjects' relationships with kin and friends and with religious, political, and fraternal groups. Caplan, Cobb, and French (1975) constructed a 21-item self-report index of the support received from three types of work-related sources: immediate superior, work group or peers, and subordinates. Miller and Ingham (1976) simply determined their subjects' confidants and acquaintances. Medalie and Goldbourt (1976) focused their attention on the availability of helpful others in coping with certain work, family, and financial problems. Brim (1974) devised a 13-item scale intended to measure certain aspects of social support, particularly value similarity. Luborsky et al. (1973) developed a self-administered Social Assets Scale intended to weigh both interpersonal assets and liabilities. A comprehensive, but relatively complex, vehicle for measuring social support is one developed by Henderson (1980). This 50-question structured interview assesses (1) perceived availability and adequacy of people who can be counted on for assistance

in problem solving and for emotional support, and (2) social integration, its availability, and adequacy.

The diversity of measures of social support is matched by the diversity of conceptualizations concerning its ingredients. Weiss (1974) has discussed six dimensions of social support: intimacy, social integration, nurturance, worth, alliance, and guidance. Operationalization of these dimensions has not yet occurred. According to Caplan's (1974) theory, social support implies an enduring pattern of continuous or intermittent ties that play a significant part in maintaining the psychological and physical integrity of the individual over time. For Caplan, a social network provides a person with "psycho-social supplies" for the maintenance of mental and emotional health.

The Social Support Questionnaire (SSQ)

Regardless of how conceptualized, social support has two basic elements: (1) available others to whom one can turn in times of need, and (2) a degree of satisfaction with the available support. Sarason, Levine, Basham, and Sarason (1981) have described a new instrument directed toward assessing these two aspects of social support. Their Social Support Questionnaire (SSQ) appears to have acceptable psychometric properties (such as test-retest reliability) and may be a useful tool in measuring social support. It consists of 27 items written to sample the great variety of situations in which social support might be important to people. These items were initially evaluated by administering them to college students who responded to and commented on them. The SSQ's 27 items ask the subject to (1) list the people to whom he or she can turn and rely on in given sets of circumstances, and (2) indicate how personally satisfying these social supports are.

Table 1 lists some items from the Social Support Questionnaire (SSQ).

Table 1

1. Whom can you really count on to listen to you when you need to talk?
2. Whom could you really count on to help you out in a crisis situation, even though they would have to go out of their way to do so?
3. Whom can you really count on to be dependable when you need help?
4. Whom could you really count on to help you out if you had just been fired from your job or expelled from school?
5. Whom can you really count on to give you useful suggestions that help you to avoid making mistakes?
6. Whom can you count on to console you when you are very upset?

These are the instructions that introduce the instrument:

> The following items ask about people in your environment who provide you with help or support. For each item, there are two questions.
>
> For the first question, list all the people you know, excluding yourself, whom you can count on for help or support in the manner described. You may either give the person's initials or their relationship to you. Do not list more than one person next to each of the numbers beneath the item, and list no more than nine persons per question.
>
> For the second question, record how satisfied you are with the overall support you have by darkening the appropriate number, 1 through 6, on your mark-sense form.

The SSQ yields two scores: the Number score (SSQN) is the mean number of support persons listed per item of the questionnaire, the Satisfaction score (SSQS) is the mean satisfaction rating.

Research with the SSQ has indicated that this instrument is not highly correlated with the social desirability response set, but is related to the experience of anxiety, depression, and hostility. People high in social support seem to experience more positive (desirable) events in their lives, have higher self-esteem, and to take a more optimistic view of life than do people low in social support. In general, low social support seems related to an external locus of control, relative dissatisfaction with life, and, in experimental settings, difficulty in persisting on a task that does not yield to a ready solution.

One large sample of college students was administered both the Social Support Questionnaire and a special version of the Life Experiences Survey (Sarason, Johnson, & Siegel, 1978). This version not only asked subjects

to rate how much each life event had affected their lives, but also asked for ratings of how much they had expected the events checked to occur ("How much did you expect the event would happen?") and how much they perceived themselves in control ("To what extent did you have control over the event's occurrence?").

Groups high in number of social supports (SSQN) reported more positive life events than did low scorers, greater effects of positive events, stronger expectations that positive events would occur, and more control over positive events. The SSQS also yielded significant differences on the rated effects of positive events. These differences were similar to, but weaker than, the comparable SSQN comparisons. Significant in the SSQS, but not the SSQN comparisons, were differences in the degree to which reported negative events had been expected. Subjects low in SSQS were more likely than high SSQS subjects to have expected negative events. The SSQN-SSQS correlation for males was +.31, while the comparable correlation for females was +.21. In view of the low to moderate levels of these correlations and the different relationships of SSQN and SSQS with LES scores, the two SSQ measures merit further comparisons with regard to criterion measures.

LIFE EVENTS, MODERATORS, AND HEALTH - METHODOLOGICAL QUESTIONS

Research on the assessment of life changes already comprises a large literature. Work on social support as a moderator of stress is accelerating. However, it is still important to exercise caution in interpreting available findings. Most studies in these areas have been primarily correlational in design, so cause-effect conclusions cannot be drawn with a high level of confidence. Even though it seems reasonable to expect that life changes may have a detrimental effect on the health and adjustment of individuals, significant correlations may be obtained for other reasons. For example,

people with problems of health and adjustment may as a result tend to experience greater degrees of life change or it may be that both stressful events and problems of health and adjustment covary with some third variable. It should be noted that preliminary studies designed to investigate the possibility of causal relationships have yielded data consistent with the hypothesis that stressful life events exert a causal influence (Johnson & Sarason, 1978; Vossel & Froehlich, 1978). However, further research concerning the nature of life stress-dependent variable relationships is greatly needed.

In addition to considering the nature of the relationships found in studies of life changes and health adjustment studies, it is necessary also to examine their magnitude. Although exceptions are to be found, correlations between measures of life changes and dependent variables have typically been low, often in the .20 to .30 range. These significant relationships are of theoretical interest, but non-cataclysmic life changes seem to account for a relatively small proportion of the variance in the dependent measures that have been studied. It would seem that by themselves, measures of life changes are not likely to be of much practical value as predictors. A logical question is whether this poor predictive ability is due to the inadequacies of the measures (unreliability of measurement, failure to assess separately positive and negative life changes, insensitive methods of quantifying the impact of events) or to other factors. As has been noted, several approaches to the assessment of life changes have been employed in the studies published to date. While instruments that distinguish between positive and negative events typically yield somewhat higher correlations with dependent variables, even these correlations tend to be relatively low in magnitude. Factors other than inadequacies of measurement may also

be related to the low correlations that have typically been found - for example, failure to take account of moderator variables.

An example of the critical role of methodological considerations is provided by research on the relationship between life events and coronary heart disease. Over 50 studies have examined this relationship; yet no unifying explanation has emerged to account for all the reported findings. Part of the problem may lie in the probability that a heart attack is both a consequence of stressful life events and a stressful life event in its own right. Some heart attack victims may want to "blame" their attacks on certain circumstances in their lives. It is true that stressful life events can lead to lifestyle changes which aggravate an existing predisposition to coronary heart disease. On the other hand, a sudden change in one's life, such as a heart attack, produces all manner of psychological reactions and behavioral changes (sleep disturbances, food intake, confusion, and suggestibility) which may produce observable clinical symptoms. Brown (1974) has pointed out the confounding role played by retrospective contamination or distortion in life events assessment. Yet what is known about the possible relationship between heart disease and life events has been gathered largely from retrospective studies in which life events were assessed after occurrence of the heart attack.

To unravel the relationships that may exist between life events and disease, a number of areas require clarification through improvement in research designs. Some of these needed changes are listed here.

1. Types of events. A wide variety of events may be considered as stressful, but very little is known about the particular types of events that are related to particular types of outcome.

2. Magnitude of events. What contributions do particular individual events make to the total level of stressfulness experienced by the individual?

Research is needed to determine the ways in which events differing in personal significance combine to produce behavioral and physical effects.

3. Timing of events. The incubation time for the impact of life events is probably not a constant. It seems reasonable that different types of events exert their influence in different ways and over different periods of time. Is it more detrimental to experience a low magnitude stressor over a long period of time or a high magnitude one over a short period?

4. Meaning of events. It would seem desirable to assess both the things that happen to people and how they appraise them. Some events may be over-appraised in that the individual attaches more significance to them than they really merit. Other events may be under-appraised, with the individual failing to appreciate their present or future implications.

5. Person variables. How events are appraised depends on the personality and circumstances of the individual experiencing them. Individual differences in such characteristics as ego strength, denial, and trait anxiety influence what people attend to and how they cope with life changes.

6. Situational variables. Environmental factors, either influenced by individuals (social support) or independent of them (being in an earthquake-resistant building), play roles in moderating the effects of life changes.

7. Causality versus correlation. It is unlikely that a given study, no matter how well designed, will be capable of providing data sufficient to justify the conclusion that a causal relationship exists. By conducting a variety of studies, specifically designed to investigate and control for specific variables, it may be possible to accumulate a body of information which, when taken together, would allow an inference of causality to be made with some justification.

LIFE CHANGE AS PART OF A THEORETICAL FRAMEWORK

The major theoretical problem in the study of life changes is the atheoretical character of much of the work in the field. An information-processing approach might provide a useful path toward a theory of life changes. Life changes provide the individual with information that requires processing. The first step in this processing is attention to a stimulus configuration. Information that is attended to requires appraisal and interpretation, after which behavioral strategies evolve. Salience is a key concept in this regard. It pervades all phases of information-processing and refers to the perceptual "pull value" of a situation and its motivational significance.

The universally salient situation evokes a standard response because it is compelling to everyone. Some situations are universally salient because most people have learned the same meaning for a particular cue. For example, when a stop light turns red most automobile drivers stop. Other situations are universally salient because their overwhelming characteristics evoke similar stress reactions in large numbers of people. Severe earthquakes, catastrophic fires, bridge collapses, mass riots, and nuclear explosions are examples of this type of stress-producing situation. When environmental conditions are not stereotyped or extreme, personal salience plays a major role in influencing behavior by directing attention to the particular elements of a situation that have personal significance. Hearing someone mention attending summer camp as a child, for example, may evoke a variety of feelings in the listener. These could include a pleasant nostalgia concerning his or her own childhood camping experiences, feelings of anger and deprivation for an experience longed for but denied, or remembrances of severe homesickness and loneliness. Some situations may not appear obviously stressful to the observer, but because of learning that

has taken place become personally salient and capable of arousing a variety of responses, including stress. Both the classical conditioning situation and the operant paradigm deal with the ability of past experience to provoke stress responses in an originally non-stressful situation.

The salience of a situation is a very personal matter and for that reason it makes sense to look at all life events and changes from an interactional perspective. No simple, standardized tally of events that happen in a given period of time can shed light on why each of the many life changes people go through is salient at a particular time, in a particular degree, and in a particular way. But it does seem possible to create instruments that go beyond simply tallying which events occurred and which did not. Earlier in this paper, we described ways in which the Life Experiences Survey was modified so as to reflect some of the factors that may result in highly individualized information processing. Whether people attend to particular situations or appraise them in particular ways depends on what might be called cognitive moderators, distinctive styles of information processing. It may be that people most likely to use a maladaptive style of information processing can be identified on the basis of personal (e.g., locus of control) or situational (e.g., social support) moderator variables. In fact, it may even be possible to utilize these variables to predict those individuals who are most vulnerable to the negative effects of particular stressors. How much measures of individual differences in personality and perceptions of a supportive environment will add to the usefulness of measures of the cumulative effects of life changes is, of course, an empirical question. But it seems to be a question well worth asking.

Individuals' behavior patterns evolve because of the situations they confront and the stimulation they supply for themselves in the form of a variety of cognitions - preoccupations, expectations, and interpretations of what is going on in the environment. This means that any event

or group of events must be viewed within the context of both (1) the totality of situations in which one is involved, and (2) the psychological residuals of past situations. These residuals (expectations, fears, sense of self-efficacy) of past situations can play significant roles in what information is processed and, consequently, in a person's vulnerability to environmental stress and consequent failure of coping mechanisms which may result in maladaptive behavior.

Both the salience of particular information and the coping mechanisms available are a function not only of the past history of a person but also of his or her developmental state. Life changes are important milestones in life span development (Brim & Ryff, 1980). An inspection of both the SRE and the LES reveals many life events that are related closely to a particular stage in development. The non-occurrence of these events at the anticipated time or their occurrence at a life stage where they less frequently occur may greatly alter their significance. For example, marriage and childbirth are most frequently associated with the stages of the twenties and early thirties. If either of these events occur in the mid-teens or the middle forties, they may have very different significance to the individual than if they occurred in the more expected period and, thus, also have a very different and likely a more extreme impact as stress producers.

We also know that at least some coping mechanisms are age-related in their development. For example, the way in which a young child and an adolescent cognitively process the news of their parents' impending divorce differs in part because of their differing ability to understand the meaning of divorce. A young child's perception may be that he or she is personally responsible by virtue of having done something to alienate

the parent who has left, "It's my fault that Daddy went away because he couldn't stand the way I whined when things went wrong." Teenagers, on the other hand, are likely to have a better understanding of the interpersonal difficulties spouses may encounter and are not as likely to see themselves as causal agents. Thus, because of the difference in the developmental level of their cognitive skills, children of those two age groups may face very different situations with which they must cope. The variety of social supports available may also be, in part, a function of developmental level. A toddler depends largely on parental figures; an adolescent has a much wider range of potential supports. Thus, how current changes are handled depends, in part, on the residues of previous changes and, in part, on the utilization of competencies in coping that occur at different stages in development. How future changes are handled depends, in part, on the outcome of current person x situation interactions.

FUTURE DIRECTIONS

An important question concerning which there is little evidence is the matter of the relative contributions of personality, life experiences, and social support to health and adjustment. Because both experience and social support influence personality, it would seem important wherever possible to incorporate all three types of variables in research designs. One useful starting point is the identification of exemplary people, those who are particularly stress-resistant. Kobasa (1979) took this tack in a study of middle- and upper-level executives who had had comparably high degrees of stressful life events during the previous three years. She found that executives who had high levels of life stress but little illness seemed more hardy than high stress-high illness executives. The defining properties of <u>hardiness</u> included a strong commitment to self, an attitude of vigorousness toward the environment, a sense of the meaningfulness of

life, and an internal locus of control. Kobasa's findings seem consistent with Antonovsky's (1979) concept, resistance resources, according to which stress-resistant people manage their tensions well and have a feeling of social belongingness. According to Antonovsky, stress-resistant people have a sense of coherence, a general orientation that sees life as meaningful and manageable. The sources of the sense of coherence, according to Antonovsky, are to be found in people's upbringing, social relationships, and cultural background. He believes people who have resistance resources are high in flexibility, which includes the capacities to (1) tolerate differences in values, and (2) adapt quickly to misfortune.

It would make sense to integrate research on life changes with theories and research concerned with how people cope with stress and the way they process potentially stressful information. Into this same package it is essential to factor the effects of moderator variables in order to describe more clearly the individual and situational differences that have been observed. A large number of research efforts have demonstrated that the number of stressful life events is related to either or both emotional adjustment and physical health. Measuring instruments described in this paper such as the LES and SSQ are designed to delineate more clearly some of these complex relationships. More emphasis on a theoretical integration of work on life events, the effects of stress, and role of individual difference variables in their effect on health should also be productive.

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LIST 8
NAVY MISCELLANEOUS

Naval Military Personnel Command (2 copies)
HRM Department (NMPC-6)
Washington, DC 20350

Naval Training Analysis
and Evaluation Group
Orlando, FL 32813

Commanding Officer
Naval Training Equipment Center
Orlando, FL 32813

Chief of Naval Education
and Training (N-5)
ACOS Research and Program
Development
Naval Air Station
Pensacola, FL 32508

Naval War College
Management Department
Newport, RI 02940

LCDR Hardy L. Merritt
Naval Reserve Readiness Command
Region 7 Naval Base
Charleston, SC 29408

Chief of Naval Technical Training
ATTN: Dr. Norman Kerr, Code 0161
NAS Memphis (75)
Millington, TN 38054

Navy Recruiting Command
Head, Research and Analysis Branch
Code 434, Room 8001
801 North Randolph Street
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CAPT Richard L. Martin, U.S.N.
Prospective Commanding Officer
USS Carl Vinson (CVN-70)
Newsport News Shipbuilding &
Drydock Company
Newsport News, VA 23607

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LIST 9
USMC

Commandant of the Marine Corps
Headquarters, U.S. Marine Corps
Code MPI-20
Washington, DC 20380

Headquarters, U.S. Marine Corps
ATTN: Dr. A. L. Slafkosky,
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Washington, DC 20380

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Sequencial by Agency

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LIST 11
OTHER FEDERAL GOVERNMENT

National Institute of Education
Educational Equity Grants Program
1200 19th Street, N.W.
Washington, DC 20208

National Institute of Education
ATTN: Dr. Fritz Muhlhauser
EOLC/SMO
1200 19th Street, N.W.
Washington, DC 20208

National Institute of Mental Health
Minority Group Mental Health Programs
Room 7 - 102
5600 Fishers Lane
Rockville, MD 20852

Office of Personnel Management
Organizational Psychology Branch
1900 E Street, NW.
Washington, DC 20415

Chief, Psychological Research Branch
ATTN: Mr. Richard Lanterman
U.S. Coast Guard (G-P-1/2/62)
Washington, DC 20590

Social and Developmental Psychology
Program
National Science Foundation
Washington, DC 20550

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Sequential by State/City

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LIST 12
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P.O. Box 5787
Monterey, CA 93940

Deputy Chief of Staff for
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Washington, DC 20310

Headquarters, FORSCOM
ATTN: AFPR-HR
Ft. McPherson, GA 30330

Army Research Institute
Field Unit - Leavenworth
P.O. Box 3122
Fort Leavenworth, KS 66027

Technical Director (2 copies)
Army Research Institute
5001 Eisenhower Avenue
Alexandria, VA 22333

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Sequential by State/City

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LIST 13
AIR FORCE

Air University Library/LSE 76-443
Maxwell AFB, AL 36112

DEPARTMENT OF THE AIR FORCE
Air War College/EDRL
Attn: Lt Col James D. Young
Maxwell AFB, AL 36112

AFOSR/NL (Dr. Fregly)
Building 410
Bolling AFB
Washington, DC 20332

Air Force Institute of Technology
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AFMPC/DPMYP
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British Embassy
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Washington, DC 20008

Canadian Defense Liaison Staff,
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300 North Washington Street
Alexandria, VA 22314

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College of Canada
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Leadership and Management
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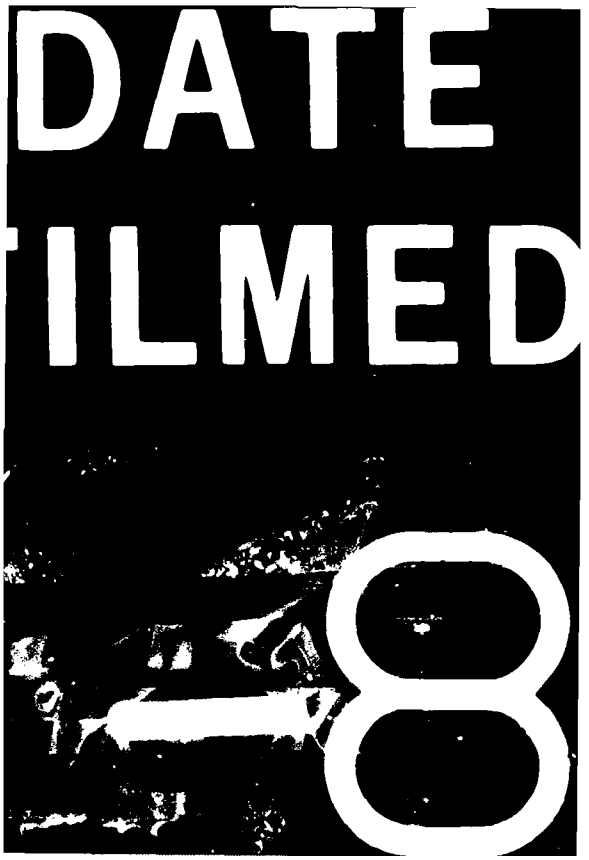
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